

## **The Governance of Infrastructure**

Edited by Kai Wegrich, Genia Kostka, and Gerhard Hammerschmid

Published by Oxford University Press, Oxford, 2017

### **Chapter Abstracts**

#### **1. The Challenges of Infrastructure: Complexity, (Ir)rationalities, and the Search for Better Governance**

Kai Wegrich, Gerhard Hammerschmid, and Genia Kostka

This chapter introduces the key challenges of infrastructure governance, in particular the complexity, uncertainty, and ambiguity inherent to this field and the multiple rationalities that come with those issues. The chapter places the volume and its contributions into the context of both the discussion about infrastructure governance—how it works, what goes wrong and how to improve it—and into the wider literature on governance. It stresses the need and relevance of a perspective that takes the insights of decades of governance research seriously, in particular the limits to simple, seemingly rational solutions to complex problems and the implications of diverse actor constellations that shape the field of infrastructure governance.

### **Part I. Theoretical Perspectives**

#### **2. Infrastructure Governance as Political Choice**

Kai Wegrich and Gerhard Hammerschmid

This chapter explores political decision-making relating to infrastructure investments in light of the recent trends towards establishing independent expert bodies to guide this process. The chapter argues that the complexity of infrastructure governance leads to patterns of decision-making shaped by mechanisms of bounded rationality and selective perception. Drawing on the concept of ‘political choice’, it also shows that current debates about such independent expert bodies too often seek to replace the political logic with a technocratic one, instead of exploring ways to increase the intelligence of inherently political processes. Institutional design debates suffer from ‘naive institutionalism’ overestimating the effects of formal institutional changes and ignoring the role of informal political dynamics. Overall, the institutional design debate in infrastructure governance should be more reflective and consider experiences with institutional reforms and attempts to depoliticise the policy process with tools of rational analysis.

#### **3. Accountability Challenges in the Governance of Infrastructure**

Jacint Jordana

Under what conditions will policy-makers be more likely to opt for additional social accountability mechanisms in order to increase legitimacy, thereby assuming the risk that their projected public investment may incur significant modifications or even a reversal? This chapter suggests that when time is the main concern, policy-makers will try to establish accountability mechanisms in order to improve transparency and increase information available to the public. When the main concerns are potential impacts of infrastructure on a territory and further externalities, typical social accountability mechanisms will tend to focus on facilitating negotiations and mutual exchanges of views, or at the very least providing information to those concerned. However, in most cases, significant effort to translate technical arguments into debates about social risks and dilemmas and to involve the acceptance of a new layer of uncertainty in the policy-making process is required.

#### **4. Infrastructure and the Principle of the Hiding Hand**

Helmut K. Anheier

Introduced by Albert O. Hirschman in the 1960s to describe development programmes at the time, the principle of the Hiding Hand describes the systematic discrepancy between what proponents propose when seeking permission for projects and what processes actually lead to certain outcomes. This chapter explores the recent renaissance of the principle and elaborates on its distinctness among related concepts in (organisational) sociology, organisational psychology, and economics. By examining multiple combinations of two critical dimensions in infrastructure planning—estimation of complexity and overall awareness of planners—a typology of four Hands is proposed: the Hiding Hand, the Protecting Hand, the Malevolent Hand, and the Passive Hand. Each Hand is associated with advantages leading to potential benefits, as well as disadvantages leading to potentially detrimental outcomes and unintended consequences. The Hiding Hand is offered as an argument in support of infrastructure planning beyond purely rationalist approaches.

### **Part II. Delivering Infrastructure**

#### **5. Risk Management for Megaprojects**

Werner Rothengatter

Megaprojects are characterised by technological, economic, aesthetic, or political ‘sublimes’ such that they appear to be unique for a region or even for a country. High political and private ambition has encouraged decision-makers in the past to take decisions without considering risk carefully. Risk management is not an isolated activity performed once in the life of a megaproject but rather a continuous process in project management. This chapter addresses all phases of the life cycle of a megaproject to elaborate the lever points for effective risk management. From a scientific point of view, it is important not only to apply promising methods that have been developed in graph theory or statistics but also to focus on the optimisation of information processes by developing appropriate instruments. Critical tasks of risk or change management require reliable information inputs and fast simulations for estimating technical, economic, and financial impacts of risk mitigating actions.

#### **6. Public-private Partnership: A Framework for Private Sector Involvement in Public Infrastructure Projects**

Carlos Oliveira Cruz and Nuno F. da Cruz

The discussion around public versus private delivery of key infrastructure projects has been marked by several twists and turns over the years and across jurisdictions. In the never-ending cycle of (re)nationalisations and (re)privatisations the current setting seems to call for some degree of involvement of private actors in public infrastructure projects. This chapter discusses the reasons behind this tendency and the typical nature of this involvement, usually operationalised through public-private partnership (PPP) arrangements. On the basis of available research and international evidence, it is argued that the promise of PPPs falls short in terms of actual outcomes. Although often times the causes for disappointing results lie with unfit motives for taking on the PPP route, many of the intrinsic features of these arrangements make them particularly susceptible to damaging the public interest—particularly for governments lacking the capacity to be effective monitors and enforcers of complex contracts.

## **7. Scale, Risk, and Construction Cost Overruns for Electricity Infrastructure: Governance and Policy Implications**

Benjamin K. Sovacool, Autumn Proudlove, and Nathaniel Green

This chapter focuses on a topic of growing importance to infrastructure governance: cost overruns, when a project ends up exceeding its anticipated budget. This chapter presents the results of a linear regression analysis of the construction costs involved with 401 electricity infrastructure projects built between 1936 and 2014 in 57 countries. Included in this sample are dozens of hydroelectric dams, nuclear reactors, thermoelectric power plants, utility-scale solar facilities, wind farms, and transmission projects that collectively required more than \$800 billion of investment and constituted more than 325,000 megawatts of capacity. The chapter shows that larger projects such as hydroelectric dams and nuclear power plants are highly correlated with cost overruns, and that wind farms and solar facilities are negatively correlated. This finding implies that smaller, more flexible, decentralized systems have a suite of (possibly undervalued) factors that make them less prone to the risk of an overrun.

## **8. Improving Public Procurement**

Matthias Haber

Public procurement accounts for a significant portion of countries' GDP and offers large potential for savings in times of austerity. To improve the effectiveness of their infrastructure investments many countries have taken various steps to modernise public procurement processes. However, due to the magnitude of available options, governments are increasingly faced with the challenge to reconcile multiple objectives and to select the ones with the largest potential for benefits. This chapter explores how well countries have managed to introduce innovative strategies and tools to modernize their public procurement processes. Using Item Response Theory for estimating countries' policy capacity and the difficulty of its implementation, a set of indicators explores five key areas that are recommended to boost the efficiency of public infrastructure procurement. The analysis demonstrates that countries vary in their capacities to modernize procurement processes and only few governments manage to perform well across the five areas.

## **Part III. Regional Challenges**

### **9. Infrastructure for Whom? Corruption Risks in Infrastructure Provision Across Europe**

Mihály Fazekas and Bence Tóth

Infrastructure construction involves vast public funds in highly complex projects comprehensible only to a few. Central and Eastern European and Mediterranean countries engage in public infrastructure procurement at a higher corruption risk than Western European countries. Public goals can be compromised in at least three direct ways: 1) distorting spending structure and project design; 2) inflating prices; and 3) contributing to delayed and low quality provision, even non-completion. This chapter analyses the first two of these to assess problem hotspots. The findings indicate that corruption steers infrastructure spending towards high value investment projects and inflates prices by 30-50 per cent on average, with the largest excesses in high corruption risk regions. Based on these findings, this chapter recommends that infrastructure be monitored using open datasets and state-of-the-art analytical tools, that spending is closely linked to user demand, and that a tailor-made implementation regime is applied to large European Union-funded projects.

## **10. Pioneer Risks in Large Infrastructure Projects in Germany**

Niklas Anzinger and Genia Kostka

This chapter analyses learning effects in the planning of large infrastructure projects in Germany. It combines insights from the analysis of a database of large-scale infrastructure projects (also known as megaprojects) across sectors over time with four in-depth case studies of offshore wind parks. Although previous studies have found that no learning takes place, this chapter finds variation in learning effects across sectors. In the building and transport sectors, no learning from previous project delivery experience takes place; in the construction of nuclear power plants, there is inverse learning; and in the construction and installation of offshore wind parks, there is positive learning. An in-depth analysis of the construction and installation of offshore wind parks shows that in sectors where project technology is more standardised and operated by a competitive private industry, planning inaccuracies can decrease because certain risk factors become more manageable and cost assessments more realistic over time.

## **11. The Governance of Infrastructure in Multiparty Presidentialism**

Marcus André Melo and Carlos Pereira

This chapter explores the political and institutional factors explaining the dismal performance in the implementation of infrastructure investment programmes in Brazil. Rather than simply stating that poor infrastructure is a constraint to economic growth and productivity, this chapter focuses on the political reasons why the choices have led to underperformance and persisted over time. By factoring into the analysis political and institutional dynamics, we identify which interest groups are affected by infrastructure policy and which political actors are involved in making those choices. By focusing on the preferences and relative powers of these actors, as well as on their interaction in terms of coalition management— all of which are determined by political institutions—a clearer picture emerges of the determinants of policy choices and outcomes that emphasises the trade-offs, restrictions and interdependencies with other policy areas that are crucial given the ‘general equilibrium’ nature of those choices.

## **12. Strategic Environmental Assessment and Public Participation in Infrastructure Siting: Klickitat County, Washington’s Wind Energy Overlay Zone**

Hilary S. Boudet and Joseph Grandolfo

The use of strategic (or programmatic) environmental assessment has been touted as a way to assess project impacts earlier and more comprehensively. Less well understood is how such an assessment occurs in practice and its implications for future public participation. This chapter presents a case study of wind energy siting in Klickitat County, Washington state—one of the first counties in the US to implement a wind energy overlay zone using a programmatic environmental impact assessment. The findings detailed in this chapter indicate that a dubious settlement agreement between local opponents and the developers of a landfill created an opportunity to mobilise support for a wind energy overlay zone. The zone facilitated development but limited future opportunities for opponent participation. The case raises questions about the role of strategic environmental assessment in expediting renewable energy development while maintaining the right of local communities to exercise meaningful voice.